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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY
MM Docket No. 92-262

In the Matter of)
)
Implementation of Section 3 of the)
Cable Television Consumer Protection)
and Competition Act of 1992)
)
Tier Buy-Through Prohibitions)

COMMENTS OF
THE NATIONAL CABLE TELEVISION ASSOCIATION, INC.

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The National Cable Television Association, Inc. ("NCTA"), by its attorneys, hereby submits its comments on the Notice of Proposed Rulemaking in the above captioned proceeding. NCTA is the principal trade association of the cable television industry, representing owners and operators of cable systems serving approximately 90 percent of the nation's 56 million cable households. Its members also include cable programmers, cable equipment manufacturers and others affiliated with the cable television industry.

INTRODUCTION AND SUMMARY

In this proceeding, the Commission is seeking to establish a workable and cost-effective approach to implementing the "buy-through" provision of the Cable Television Consumer Protection and Competition Act of 1992 ("the Act").

The "buy-through" provision, section 3(b)(8) of the Act, prohibits cable operators from requiring subscribers to purchase any tier of service, other than the basic tier, "as a condition

of access to video programming offered on a per-channel or per-program basis."^{1/} The prohibition does not apply to cable systems for a period of 10 years where, by reason of lack of addressable converters or other technological limitations, the operator is unable to offer programming on a per-channel or per-program basis. However, cable systems that upgrade or modify their systems to eliminate such technological impediments would become subject to the prohibition during the 10-year period.

According to the legislative history, the goal of the buy-through provision is to enable subscribers to freely choose among available programming options.^{2/} While unbundling cable programming services and, indeed, customizing cable service for individual subscribers are potential future trends (both technologically and from a marketing standpoint), these practices are not feasible for most cable systems today.

Moreover, premature application of the buy-through provision would have an adverse impact on other equally important goals in the Act. In particular, imposing the buy-through requirement early on would likely increase rates, create consumer unfriendliness, and hinder technical reliability and service. It also could have the unintended effect of impeding technological innovation in the field of digital compression. This would all

1/ 47 U.S.C. Section 543(b)(8)(A).

2/ Senate Report No. 102-92, 102d Cong., 1st Sess. at 77 (1992)("Senate Report").

happen at a time when cable systems are striving for higher reliability and improved customer service.

Thus, mindful of these concerns, the Commission should apply buy-through regulation to those cable systems that have the technological capability to implement it with minimal cost and disruption. All other cable systems should be accorded the full ten-year transition to deploy the technology and equipment necessary for compliance. The Commission should also acknowledge explicitly the flexibility accorded by the Act to make special arrangements for small systems and to waive the buy-through requirement indefinitely in appropriate circumstances.

It is also critical that the Commission revisit its initial interpretation of the statute's provisions that are designed to deter discrimination in rates. First, contrary to the assertion in the NPRM, the statute does not require subscription to the basic service tier as a condition of access to per-channel or pay-per-view programming. Second, the cable operator, at its option, may offer packages and other arrangements that discount services below the per-channel rate. Finally, the cable operator may charge different rates for services based upon, for example, the different costs of delivering different service options.

I. CABLE SYSTEMS THAT ARE NOT FULLY ADDRESSABLE ARE WITHIN THE SCOPE OF THE TEN-YEAR EXEMPTION

As the Commission recognizes, addressability is the cornerstone of the buy-through provision. True addressability, as defined in the legislative history, means "the technology to isolate all channels."^{3/} In other words, fully addressable cable systems have "the capability to make available different levels of service to different subscribers electronically, often instantaneously, from their headend."^{4/}

Few cable operators, however, actually have the technology in place to simply flip a switch to authorize or deauthorize all of a system's channels from a remote location.^{5/} Most cable systems still utilize physical devices, known as traps, at or near the subscriber's premises to control access to cable service. To date, the use of set top addressable boxes largely has been limited to securing access to the most popular pay services (usually clustered in a particular frequency band area). The technology has not been deployed on a wider scale because of

3/ Senate Report at 77.

3/ NPRM at para. 2.

5/ Although the Senate Report asserts without citation that about one quarter of all cable systems have the technology to isolate all channels, we believe that estimate seriously overstates the number of fully addressable systems currently in operation.

cost.^{6/} It also renders many of the latest advances in home electronics equipment (such as picture-in-picture) inoperable.

Thus, while cable operators recognize that, in the long run, addressability will be needed to maximize the number and variety of programming options, it is presently outweighed by cost considerations and the need to avoid consumer inconvenience and dissatisfaction.

The Commission has appropriately determined that "cable systems which were not designed and built with (or upgraded to incorporate) addressable technology are by definition within the scope of the Act's 10-year exemption."^{7/} It should make clear, however, that only those systems that are 100 percent addressable are covered by the buy-through regulations during the 10-year transition period. As will be demonstrated below, most systems (even those that have employed some limited addressability) have technological limitations that make compliance with the buy-through provision difficult and costly at this time.

6/ Aside from the cost of computers and control circuitry necessary for addressable headend equipment, it costs approximately \$2000 per channel to scramble each service. Moreover, addressable converters cost more than twice the cost of non-addressable converters. In order to impose the buy-through prohibition effectively in most cable systems, every channel would have to be scrambled and every subscriber would have to have an addressable box. This would ensure that every per-channel and per-program pay service is available to basic-only subscribers.

7/ NPRM at para. 6.

A. Cable Systems that Control Access to Programming With Traps Are Technically Incapable of Complying with the Buy-Through Requirement

The technical processes and equipment employed by most cable systems lack the flexibility to effectively implement the buy-through prohibition.^{8/} In order to achieve the flexibility of modern cable systems -- that is, the ability to isolate and access the whole range of per-channel and per-program offerings (and handle the constant reshuffling that would accompany such service) -- requires upgrading to full addressability.

As noted above, the cable operator typically groups channels together and uses traps or filters to eliminate an entire band of channels that together comprise a tier. For example, many cable systems have realigned their channels to encompass basic service on channels 2-13, individual pay services on channels 14, 15, and 16, and an expanded basic tier and pay-per-view services on channels 17 to the end. The operator uses band stop filters to prevent channels 14-22 and channels 23 and above from going into a basic-only subscriber's home; and uses individual traps to block channels 14, 15, and 16. If a movie service is ordered, for example, only one of the traps would be removed.^{9/}

But traps have inherent limitations. Indeed, using traps to segregate individual channels for any and every channel and

8/ See generally, Statement of Steven C. Johnson, Attachment A; Statement of Joseph Van Loan, Attachment B.

9/ See generally Statement of Steven C. Johnson.

program option requested by subscribers would be intolerable. This is because offering the basic-only subscriber access to all such services requires the design and installation of a complex series of traps that allow one or more channels to pass through the band stop filter(s). The result is a physically cumbersome, mechanically unstable structure with sections pieced together by multiple connectors that are a potential source of signal leakage and signal ingress.^{10/}

And that is the least of the problems. Every time a trap is added, it degrades signal quality and sound on adjacent channels. And at some point, the installation of more than three or four traps risks spillover effects that would violate the Commission's cable technical standards.^{11/}

Moreover, even if the cable system could accommodate a multitude of customized traps, the physical removal and insertion of such devices is labor-intensive. This is particularly so when churn rates on premium services are taken into account. Even

10/ Signals carried on a cable system may not only "leak out" and cause interference to critical over-the-air frequencies, but over-the-air signals may "leak in" causing interference in subscriber picture quality.

11/ See e.g., 47 C.F.R. Section 76.605(3) (signal level requirements at subscriber terminal). In aerial applications, an excessive number of traps may lead to problems maintaining safety clearance between cable and utility equipment occupying the same poles and may cause damage to taps. There is also concern about the physical space that traps require in apartment boxes and underground pedestals. See Statement of Steven C. Johnson; Statement of Joseph Van Loan.

though churn rates have generally decreased, cable systems still face levels of 30 percent annual churn on premium services.^{12/}

If the buy-through prohibition is applied to systems that are not fully addressable, cable operators will be forced to continuously roll trucks to adjust traps in order to satisfy changing viewing desires (even though the consumer may subscribe to only one program). And when new pay services are added, operators would be forced to reconfigure their system of traps again.

Presumably, they would not be able to give one pay service an advantage over another since the Act requires them to provide access to all per-channel and per-program services.^{13/}

Furthermore, the problem will be exacerbated if broadcasters that operate on a channel number higher than the number of channels in the cable operator's basic service obtain the right to carriage on their over-the-air channel position. For example, in such situations, the cable operator would have to install additional filters to allow on-channel carriage for channel 45 in a system with a basic tier of channels 2 through 13. In that

12/ Paul Kagan Associates, "Marketing New Media", August 17, 1992, p. 3.

13/ Designing the basic service tier with extra capacity so that all future per-channel and per-program services could fit into the basic tier trap is not a solution. It would mean that channels that could have been used for expanded basic would be allocated to basic. Thus, if the Discovery Channel, for example, multiplexed its service, the system would be unable to accommodate these new services in expanded basic in order to protect the basic service tier. This has the overall effect of limiting flexibility and diversity of programming.

regard, we support the Commission's conclusion that Congress intended that stations be entitled to carriage on their on-channel position only when that channel is encompassed by the basic service tier on the system.^{14/}

B. Scrambling All Channels Is Costly and Creates Consumer Unfriendliness

In light of the technical impediments associated with a complicated system of traps, the only other way that cable systems can implement the buy-through provision today is to scramble all channels. This would enable the operator to breakout the basic package, secure the expanded basic channels and allow subscribers the ability to add or delete per-channel or per-program services above the basic tier. But widespread use of the current scrambling technology will have significant downsides.

First, achieving full addressability will require the operator to install scrambling headend equipment for each channel, including intermediate tiers, and provide an expensive converter box to all homes. The installation of addressable scrambling technology where it currently is not in use could cost cable operators, and ultimately cable subscribers, between \$260

14/ In the Matter of Implementation of the Cable Television Consumer Protection and Competition Act of 1992, Broadcast Signal Carriage Issues, MM Docket No. 92-259 (released November 19, 1992) at para. 33. In any event, every three years, broadcasters could change their carriage status or opt for retransmission consent, necessitating new truck rolls to change filters.

million to \$580 million per year over the 10-year phase-in period.^{15/}

The Commission indicated in the NPRM, however, that it intends to fashion regulations that do not impose "excessive or undue burdens or expense on cable operators or subscribers." And Congress implicitly recognized the cost implications of buy-through when it enacted a waiver provision based on rate increases. If scrambling is mandated early on in the ten-year

15/ The upper range of the cost estimate, \$580 million annually, assumes that an addressable converter will be needed in every subscriber's household which does not currently have a converter (approximately 36 million homes). Additionally, there are labor costs associated with installing converters in each home. Similarly, cable systems which do not currently employ addressable technology will have to install headend equipment to scramble channels beyond the basic tier. The lower end of the cost estimate range, \$260 million annually, includes the costs for additional addressable converters, additional addressable headend equipment and the cost of scrambling non-basic channels. This lower estimate, however, takes into account current industry projections for normal addressable technology growth over the next 10 years, and calculates the cost for the incremental number of homes (approximately 16 million) that these projections estimate would not be provided with addressable technology absent the legislation.

See Letter to Honorable John D. Dingell, Chairman, Committee on Energy and Commerce, U.S. House of Representatives from Gregory F. Chapados, Assistant Secretary, National Telecommunications and Information Administration, U. S. Department of Commerce, September 8, 1992, pp. 3-4 (analysis of NCTA's addressability cost projection based on five-year phase-in.)

According to Paul Kagan Associates, if 30 percent of subscribers order basic-only service, "the number of new boxes needed just for today's addressable systems (and not including second sets) would be roughly 10 million." Cable TV Technology, August 24, 1992, p. 6.

cycle, cable systems will not only face a huge financial burden but the masses of subscribers would bear the cost necessary to protect a few basic-only subscribers.

Second, as noted earlier, scrambling can introduce serious consumer unfriendliness. It requires that the subscriber use the cable-supplied tuner which tunes every incoming signal to one channel, thereby rendering VCRs incapable of recording one channel while the viewer watches a second channel, and disabling such features as picture-in-picture on more sophisticated television receivers.

Some cable systems have actually lost pay customers after going addressable because there are subscribers who prefer to maintain the functions available in their televisions, VCRs and remote controls rather than receive pay services.^{16/} For this reason, operators have attempted to minimize the number of scrambled channels. By repositioning channels in the basic tier trap, subscribers are able to utilize cable ready sets.

Moreover, pursuant to section 17 of the Act, the consumer electronics industry and the cable industry are working together to resolve the equipment compatibility dilemma. It would be inconsistent with this policy objective to force cable systems to scramble their services in order to comply with the buy-through

16/ Paul Kagan Associates, "Cable TV Technology", August 24, 1992, p. 2.

provision before the technological changes related to this issue are worked out and implemented.

C. The Commission Should Grant A Waiver of the Buy-Through Requirement for Small Systems, and Should Use Its Waiver Authority to Relieve Other Systems of Such Obligation As Circumstances Warrant

Pursuant to section 3(b)(8)(C), a cable operator may seek a waiver of the buy-through requirement if compliance would require the cable operator to increase its rates and waiver is consistent with the public interest. The statute also recognizes explicitly that small systems, those that have 1,000 or fewer subscribers, will have special difficulties complying with the rate regulatory provisions, and directs the Commission to "design ... regulations to reduce the administrative burdens and cost of compliance"^{17/} for these systems.^{18/} The Commission, either by granting a general waiver under Section 3(b)(8)(C), or by exempting systems with 1,000 or fewer subscribers, should relieve small systems of the requirement of compliance with the buy-through requirements. The Commission should also acknowledge that waivers will be necessary for larger systems.

^{17/} 47 U.S.C. Sec. 543(i).

^{18/} Senator Inouye, the bill's floor manager, intended "that cable systems that serve fewer than 1,000 subscribers should have reduced administrative burdens and that the FCC should give special consideration to the needs of small cable operators to receive waivers of the anti-buy-through provision. 138 Cong. Rec. S14608-9 (daily ed. Sept. 22, 1992) (statement of Sen. Inouye).

According to the latest Television and Cable Factbook, at least 5,815 of the nation's 11,086 cable systems have fewer than 1,000 subscribers. (Information is unavailable for 1,221 systems; most of these systems are also likely to have fewer than 1,000 subscribers.) Of these 5,815 systems, 2,945 have fewer than 250 subscribers. These small systems will find compliance with the buy-through requirement extremely burdensome.

The fixed costs of compliance for all cable systems are not minor. By one estimate, to comply a cable operator must install \$15,000 in headend equipment, plus additional per channel amounts, in order to comply. These costs will be exceedingly burdensome to small systems that are unable to spread the costs over a wide subscriber base. Rate increases to achieve compliance are inevitable unless small systems are relieved of the requirement. In these circumstances, a general waiver or exemption is called for.

Furthermore, the Commission should be prepared, consistent with the statute's waiver provision, its general waiver authority under Section 1.2 of the rules, 47 C.F.R. Sec. 1.2, and the standard set forth in WAIT Radio, Inc. v. FCC,^{19/} to grant waivers of its buy-through regulations when waivers are found to be in the public interest. The Commission need not now set forth the circumstances in which waiver is appropriate. Instead, the

19/ WAIT Radio, Inc. v. FCC, 418 F.2d 1153 (D.C. Cir. 1969).

circumstances in which a waiver is proper will be determined as precedents are established through case-by-case adjudications.

II. PREMATURE APPLICATION OF THE BUY-THROUGH PROHIBITION WILL IMPEDE DIGITAL TECHNOLOGY INNOVATION

As reflected in several recent announcements, the cable industry is evolving toward digitization, while experimenting with new technologies that merge cable, computers and telecommunications. In December, Tele-Communications, Inc. announced the coming of a virtual explosion in channel capacity through digital compression techniques developed by General Instrument Corporation and AT&T. According to John Malone, President and CEO of TCI, this will stimulate a "large array of a la carte service, interactive programming guides, narrow niche services" and multiple channels of sports and pay-per-view events.^{20/} TCI and Viacom International intend to roll out digital compression converters in subscriber homes by 1994.^{21/} Other cable companies are expected to widely adopt digital technology over the next ten years.

Cable programmers also are positioning themselves for the new world of digital compression. HBO, for example, launched four new digital pay services on January 1, 1993. And Discovery

20/ "TCI: \$200 Million for Channel Explosion", Broadcasting, December 7, 1992, p. 4.

21/ "Western Cable Show Is Vivid Display of How Technology Drives Industry", Wall Street Journal, December 7, 1992; "TV's Brave New World", Washington Post, December 26, 1992.

Communications, Inc. has developed a universal remote control/on-screen menu system for use in the era of 500 digital channels.^{22/}

The advent of digital compression technology is likely to be a driving force in the deployment of addressable equipment. Even without digitization, many cable systems will need to replace their existing non-addressable converters at some point during the early or mid-part of the 10-year cycle and would, as a result of the Act, be obliged to change over to addressable converters rather than continue with less expensive non-addressable converters. This transition probably will be made easier when the equipment compatibility debate is resolved over the next year.

But once compression arrives, even the most up-to-date analog converters will have to be changed out to accommodate digital units. The question then becomes why utilize analog descramblers on a widescale basis now when digital decompressors will be available within the next several years? Moreover, as cable systems continue to experiment with multichannel pay-per-view and near video-on-demand of 50 to 100 channels, the demand for such services will dictate the speed with which cable operators will incorporate new a la carte capability. There also will be powerful marketplace incentives to achieving full

^{22/} "Discovery Pitches Network Digital Reruns-On-Demand", Broadcasting, December 21, 1992, p. 14.

addressability in the form of competition from direct broadcast satellite and other multichannel video services. In any event, the Act requires cable operators, by the year 2002, to guarantee access to all per-channel and per-program services.

But if cable systems are now required en masse to install addressable converters, compression technology growth would likely be slowed because few operators would further invest in digital decompressors until the useful life of the just-acquired technology expires. Thus, it is likely that any cable operator who is compelled to install analog addressable technology will decide to delay the implementation of digital compression, as well as high definition television.

In light of these considerations, the Commission should pace its implementation of the buy-through prohibition in accordance with not only the technological capabilities of cable television, but other equally important policy imperatives and marketplace developments. Only those cable systems that are fully addressable, i.e., where the cable operator has the capability to isolate all channels electronically from the headend to the home converter, should be subject to the prohibition during the ten-year transition.

III. THE COMMISSION'S APPROACH TO DISCRIMINATION WILL UNREASONABLY AND UNLAWFULLY RESTRICT THE ABILITY OF CABLE OPERATORS TO EFFICIENTLY MARKET PROGRAMMING SERVICES

As discussed above, under the Act, and subject to certain exceptions and limitations, "[a] cable operator may not require the subscription to any tier other than the basic service tier ... as a condition of access to video programming offered on a per-channel or per-program basis."^{23/} As a result of this prohibition, the cable operator offering per-channel or per-program services may not require subscribers to the basic tier to purchase expanded basic tiers as a condition to the purchase of per-channel or per-program services.

The statute further provides that "[a] cable operator may not discriminate between subscribers to the basic service tier and other subscribers with regard to the rate charged for video programming offered on a per-channel or per-program basis."^{24/} The intent of this latter provision is to prevent the cable operator from accomplishing through pricing arrangements the particular discrimination that is prohibited in the first sentence of the statutory provision.

The Commission interprets the buy-through prohibition, taken in conjunction with the Act's other provisions, to mean that

- "all subscribers will, at a minimum, purchase the basic tier;

^{23/} 47 U.S.C. Section 543 (b)(8)(A).

^{24/} Id.

- "that subscribers purchasing only the basic tier are entitled to "buy through" to premium or pay-per-view services without subscribing to intermediate services or tiers of service (e.g., tiers commonly known as 'expanded basic'); and
- "that basic tier subscribers who do 'buy through' are entitled to the same rate structure for those premium or pay-per-view services as subscribers purchasing intermediate services or tiers."^{25/}

The NPRM misinterprets the requirements of the statute on two counts. First, the statute does not require all subscribers to purchase the basic service tier. Instead, each cable operator is required to "provide its subscribers a separately available basic service tier to which subscription is required for access to any other tier of service."^{26/} Thus, under the statute the cable operator is not required to condition access to per-channel or per-program services upon the subscriber's purchase of the basic service tier. To the contrary, it is the cable operator's choice whether any conditions precedent to purchasing per-channel or per-program services are imposed.^{27/}

Second, the statute should not be interpreted to invariably prohibit the cable operator from charging different per-channel or per-program rates depending upon whether subscribers purchase the basic service tier or other tiers; the statute only prohibits

25/ NPRM at para. 7.

26/ 47 U.S.C. Section 543 (b)(7)(A) (emphasis supplied).

27/ 47 U.S.C. Section 543 (b)(8)(A).

discriminatory rates. Discrimination does not mean all differences are barred.^{28/} If differences in rates are based on differences in costs, such as the possibly different costs of providing transmission for the use of different amounts of bandwidth, they are not barred by the statute.


28/ The Commission has previously recognized, in the cellular context, that the practice of bundling can have significant public interest benefits. These benefits include the provision of an efficient promotional device that reduces barriers to new customers, increasing demand for service and thereby spreading the fixed costs of service over a wider customer base, and promoting the growth of service. See Bundling of Cellular Customer Premises Equipment and Cellular Service, 7 FCC Rcd. 4028, 4030-31 (1992).

CONCLUSION

For the foregoing reasons, the Commission should exempt all cable systems that are not fully addressable from the buy-through requirement during the ten-year statutory period.

Respectfully submitted,

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STATEMENT OF STEVEN C. JOHNSON
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1. My name is Steven C. Johnson. I am presently a Senior CATV Project Engineer at Time Warner Cable and have 16 years of experience in the cable television industry. I hold a BS in Electronic Engineering Technology from Oklahoma State University. I am also certified as a Broadband Communications Engineer by the Society of Cable Television Engineers and a Broadcast Engineer (television) by the Society of Broadcast Engineers.
2. The following describes the technical ramifications for cable systems of the "buy through" prohibition in the Cable Television Consumer Protection and Competition Act of 1992.
3. Basically, addressability is the only technology in place today that would allow basic-only subscribers to access all programming on a per channel or per program basis.

Traps

4. Using traps to isolate individual channels or programs would require a multitude of custom devices that would be ever-changing as a result of subscriber changes in the services ordered. A system of traps requires capital expenses for purchase and installation, and multiple visits to subscriber premises.
5. Present scenarios involving traps work quite effectively because they allow the cable operator to group channels together and use traps that eliminate an entire band of channels which comprise the tier. For example, basic service would be on channels 2 - 13, pay services on 14, 15, 16, and a tier on 17 - 42 (or whatever is the highest channel number). An operator would stock individual traps for channels 14, 15, and 16 and band stop traps for channels 14 - 22 and channels 23 and above for a total of five traps. A basic subscriber would have a trap for 14 - 22 and 23 and above (two traps). An expanded basic tier subscriber would require three traps: 14, 15, and 16. One of these traps would then be removed for each pay channel to which a consumer subscribed.
6. In the above example, negative traps are used to block a highly penetrated service. A non-buy through subscriber to that service would have a trap inserted into his cable drop. In conjunction with negative traps, positive traps are often used on lowly penetrated services (single channels). In this case, a trap is used to enable the subscriber to receive the service, rather than to block it.
7. If cable operators are required to provide access to all per channel and per program options, and to vary the channel assignment of "must carry" broadcast stations, the system of band stop filters no longer works. The band stop filter now has to have a gap to allow one (or two or three) channel(s) to pass. This greatly complicates the design of the trap and can have the effect of deteriorating the signal quality of other channels.

8. Since each trap has insertion loss and degrading characteristics, cable operators must decide how many traps they can accommodate and still meet FCC technical standards and their own in-house standards.

9. In addition, in aerial applications, there is a limit to the number of traps that can be used. An excessive number of traps can lead to safety clearance violations between cable and utility equipment on the same poles and can cause damage to the cable television tap due to the torque placed on the tap's connector. Another issue that arises is the physical space that traps require in apartment boxes and underground pedestals.

10. In light of the above considerations, Time Warner Cable has established three as the maximum number of traps that a system can reasonably handle.

11. If the cable operator has control over the channel lineup (i.e., keeping all the basic channels on 2 through 13 and above the pay services but below channel 23), a trapping scenario might work but it would require stocking many more varieties of traps. In the above example, where buy through occurs, the system would still stock high band traps (23 and above), mid band traps (14 - 22), channel 14 traps, channel 15 traps, and channel 16 traps. Four more traps would have to be added to provide access to all per-channel and per-program pay services in a non-buy-through scenario: a channel 15 - 22 trap, a 16 - 22 trap, a 17 - 22 trap, and a 14 - 15 trap. This is the only way to provide any and all combinations of pay services without buying through the intermediate tier. This would not allow the cable system, however, to offer additional pay services or pay per view in the future.

Scrambling

12. Aside from traps, the other option to meet the non-buy through requirement would be to scramble the expanded tier. This would require that the system be either 100% addressable (a small percentage of total cable systems) or that the cable operator scramble all channels and deploy addressable converters to all homes not presently having them. In 100% addressable systems, the tier is probably already scrambled and non-buy through provisions could be implemented. In systems not presently 100% addressable, installing scrambling equipment and deploying addressable converters to every subscriber would place a huge financial burden on the cable operator.

13. Time Warner Cable has found fully scrambled systems to be very consumer unfriendly and uses this approach only in systems where the theft problem justifies it to maintain signal security. Scrambling has the disadvantage that it disables features on so called "cable-ready" consumer electronics products. Scrambling requires that the subscriber use the cable company supplied tuner which tunes all incoming signals to channel 3, thereby disabling VCR recording on more than one channel and disabling features like picture-in-picture on higher end television sets.

14. In Time Warner's Mile Hi system in Denver, we found that scrambling every channel was so unpopular with our customers that it was hurting sales. In response, we unscrambled all but a few pay channels and trapped the more

popular pay services so that the majority of our subscribers could use the features of their "cable-ready" equipment.

15. Scrambling is very capital intensive. Nevertheless, there is a reason from a security or marketing standpoint for implementing scrambling where we have: that is to address either high theft rates or numerous pay options beyond what trapping can accommodate.